

REMARKS

The Official Action mailed November 23, 2005, has been received and its contents carefully noted. This response is filed within three months of the mailing date of the Official Action and therefore is believed to be timely without extension of time. Accordingly, the Applicants respectfully submit that this response is being timely filed.

The Applicants note with appreciation the consideration of the Information Disclosure Statement filed on January 7, 2005. However, despite an earlier request, the Applicants still have not received acknowledgment of the Information Disclosure Statement filed on March 16, 2001. The Official Action is silent as to whether the Examiner has access to the Information Disclosure Statement filed March 16, 2001. Although the Image File Wrapper (IFW) includes documents filed on March 16, 2001, IFW does not appear to include the Information Disclosure Statement filed March 16, 2001. Therefore, it is presumed that the Information Disclosure Statement filed March 16, 2001, was not scanned into IFW and is not available to the Examiner. As a courtesy to the Examiner, the Applicants resubmit herewith a copy of the Information Disclosure Statement filed on March 16, 2001, together with a copy of the post card confirming receipt of the IDS at OIPE on March 16, 2001. It is respectfully submitted that the above-referenced Information Disclosure Statement was properly and filed on March 16, 2001, and should be accorded its filing date for the purposes of consideration and compliance with 37 CFR §§ 1.97 and 1.98. It is noted that a full translation of JP 07-015482 was submitted with the Information Disclosure Statement filed January 7, 2005, and has already been considered by the Examiner; therefore, the Applicants have crossed through the citation of JP '482 in the attached copy of the Information Disclosure Statement filed March 16, 2001. However, for the sake of completeness, a copy of JP '482 as filed with the Information Disclosure Statement filed March 16, 2001 is submitted herewith. It is further noted that an English translation of the "International Search Report" (or International Preliminary Examination Report or IPER), which is cited in the "OTHER PRIOR ART" section of the Form PTO-1449 was submitted by the

Applicants on August 8, 2001 (received by OIPE August 10, 2001). The English translation of the IPER is available in IFW. The Applicants respectfully request that the Examiner provide an initialed copy of the Form PTO-1449 evidencing consideration of this Information Disclosure Statement.

Claims 2-11 are pending in the present application, of which claims 2, 6 and 11 are independent. Independent claims 2, 6 and 11 have been amended to better recite the features of the present invention; dependent claims 5 and 10 have been amended to correct minor matters of form; and new dependent claim 12 has been added to recite additional protection to which the Applicants are entitled. Accordingly, claims 2-12 are now pending in the present application, of which claims 2, 6 and 11 are independent. For the reasons set forth in detail below, all claims are believed to be in condition for allowance. Favorable reconsideration is requested.

Paragraph 1 of the Official Action rejects claims 6, 8 and 11 as anticipated by U.S. Patent No. 5,909,384 to Tal et al. (Please note, although the Official Action refers to "Tai," the first named inventor of U.S. Patent No. 5,909,384 is "Tal.") The Applicants respectfully submit that an anticipation rejection cannot be maintained against the independent claims of the present application, as amended.

As stated in MPEP § 2131, to establish an anticipation rejection, each and every element as set forth in the claim must be described either expressly or inherently in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Independent claim 2 has been amended to recite means for individually detecting a received C/N and a decoding error rate of a received digital signal; and means for estimating phase noise characteristics of an outdoor unit connected to a receiving terminal of a radio digital signal receiver on the basis of foresight information for the relationship among three values of a received C/N, a decoding error rate and a phase noise and the detected received C/N and decoding error rate. Independent claim 6 has been amended to recite means for changing a loop characteristic for a carrier

regenerator on the basis of foresight information for the relationship among three values of a received C/N, a decoding error rate and a phase noise and the determined result of the magnitude of the decoding error rate. Independent claim 11 has been amended to recite that a predetermined value for a received C/N and a predetermined threshold are determined on the basis of foresight information for the relationship among three values of a received C/N, a decoding error rate and a phase noise. In other words, each of the amended independent claims 2, 6 and 11 clearly recites that phase noise characteristics are estimated (or a loop characteristic is changed) (or a predetermined value and threshold are determined) partly on the basis of "foresight information for the relationship among three values of a received C/N, a decoding error rate and a phase noise." Also, the independent claims recite that a received C/N and a decoding error rate are individually detected by separate means. Tal does not teach the above-referenced features of the independent claims, either explicitly or inherently.

As recited in the present claims and taught in the present specification, one unique feature of the present invention is an individual detection of the received C/N and an individual detection of the decoding error rate of the decoded digital signal and estimating phase-noise characteristics of an outdoor unit (i.e., an antenna plus a down converter) on the basis of the decoding error rate when the received C/N has a specific value.

The technical idea of the present invention is based on the discovery of the phenomenon that the relationship between the received C/N and the decoding error rate of the digital signal (when burst waves are received) varies depending on the phase noise characteristic of the outdoor unit. The present invention properly estimates the phase-noise characteristic of the outdoor unit on the basis of (i) the known relationship (i.e., foresight information), which has been measured beforehand, among the received C/N, the decoding error rate and the phase-noise level, and (ii) the received C/N and the decoding error rate which are actually observed when operating the receiver.

According to the present invention, even if it is difficult to directly measure the phase-noise characteristic of the outdoor unit, the phase-noise characteristic of the outdoor unit can be estimated at a practically permissible accuracy on the basis of the detection of both the received C/N and the decoding error rate upon reception. Therefore, this brings the specific technical advantage that it is possible to automatically establish the carrier regenerative loop characteristic suitable to the property of the outdoor unit connected to the receiver.

The Official Action asserts that "[Tal] discloses a radio digital signal receiver ... [the] C/N (SNR) of the received signal is measured ... and the corresponding BER [bit error rate] is determined from this value ... [and the] taps for the equalizing filter are changed according to these values [the measured C/N (SNR) and the determined BER]" (page 3, Paper No. 20051018).

However, Tal only appears to disclose a digital filter which operates to measure a signal-to-noise ratio (SNR) and to dynamically change the characteristic of an adaptive filter having a plurality of taps (i.e., such that specific taps are removed or added). Tal does not teach that a decoding error rate and a received C/N are detected independently of each other. The disclosure at column 2, line 62, to column 3, line 7 of Tal only refers to the generalization that the BER depends on the SNR and the less the SNR becomes, the more the BER increases. Thus, Tal does not teach that the decoding error rate and the received C/N are detected independently of each other, either explicitly or inherently.

Further, Tal does not teach the technique unique to the present invention, that is, that the phase noise level is estimated on the basis of (i) the pre-measured known relationship between the decoding error rate and the received C/N and (ii) the actually detected decoding error rate and received C/N. In the first place, Tal chiefly aims to operate an adaptive filter provided in the receiver used in a communication system, and Tal does not recognize a problem in the prior art that an appropriate characteristic of a carrier regenerative loop cannot be determined under a situation that a phase-noise

characteristic of an outdoor unit is unknown. Therefore, Tal does not teach a solution to the problem, much less the specific claimed means for solving the problem, as noted in detail above.

In fact, Tal does not control a characteristic of a carrier regeneration loop contained in a receiver. This is evident from the fact that the operation of the demodulator 80 in Tal is fixed (as shown in Figure 3 of Tal, reproduced below).

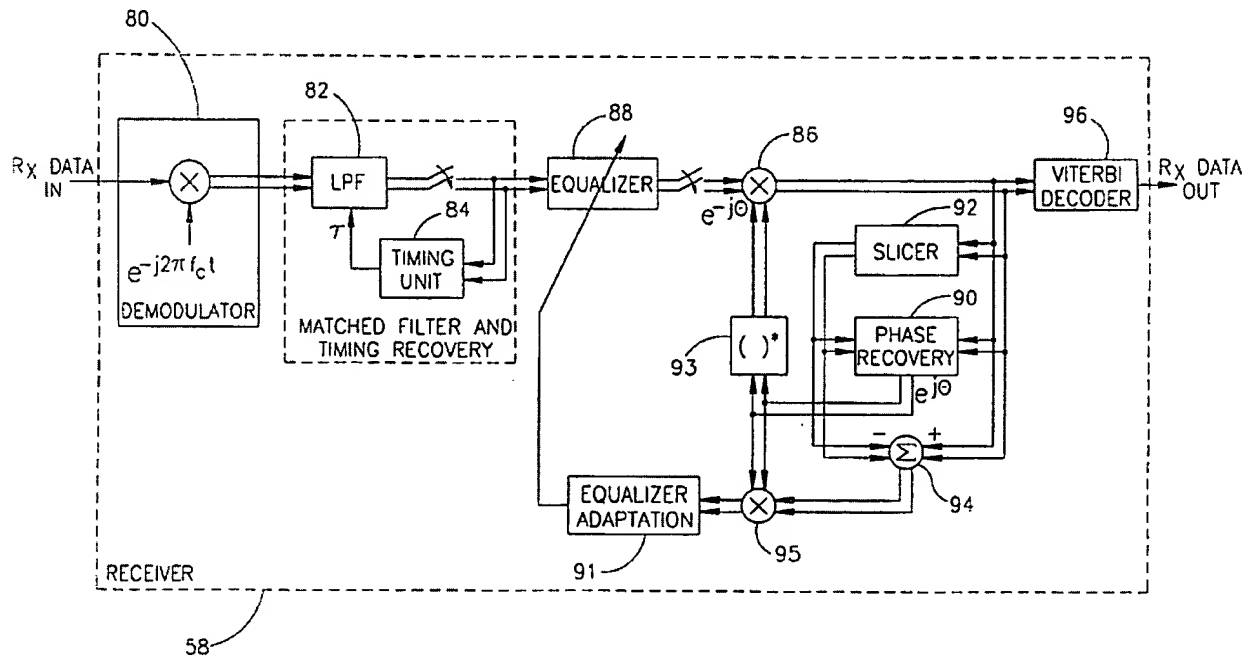


FIG.3

Therefore, Tal does not teach means for individually detecting a received C/N and a decoding error rate of a received digital signal, either explicitly or inherently. Also, Tal does not teach that phase noise characteristics are estimated (or a loop characteristic is changed) (or a predetermined value and threshold are determined) partly on the basis of "foresight information for the relationship among three values of a received C/N, a decoding error rate and a phase noise," either explicitly or inherently.

Since Tal does not teach all the elements of the independent claims, either explicitly or inherently, an anticipation rejection cannot be maintained. Accordingly,

reconsideration and withdrawal of the rejections under 35 U.S.C. § 102 are in order and respectfully requested.

Paragraph 2 of the Official Action rejects claims 2-5, 7, 9 and 10 as obvious based on the combination of Tal et al. and U.S. Patent No. 5,027,371 to Sehier et al. The Applicants respectfully submit that a *prima facie* case of obviousness cannot be maintained against the independent claims of the present application, as amended.

As stated in MPEP §§ 2142-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

Please incorporate the arguments above with respect to the deficiencies in Tal. Sehier does not cure the deficiencies in Tal. The Official Action relies on Sehier to allegedly teach a PSK signal. However, Tal and Sehier, either alone or in combination, do not teach or suggest means for individually detecting a received C/N and a decoding error rate of a received digital signal; or that phase noise characteristics are estimated (or a loop characteristic is changed) (or a predetermined value and threshold are

determined) partly on the basis of "foresight information for the relationship among three values of a received C/N, a decoding error rate and a phase noise." Since Tal and Sehier do not teach or suggest all the claim limitations, a *prima facie* case of obviousness cannot be maintained. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

New claim 12 has been added to recite additional protection to which the Applicants are entitled. For the reasons stated above and already of record, the Applicants respectfully submit that new claim 12 is in condition for allowance.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,



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